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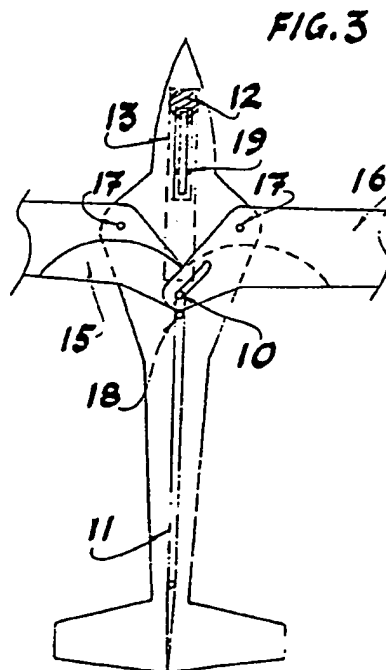
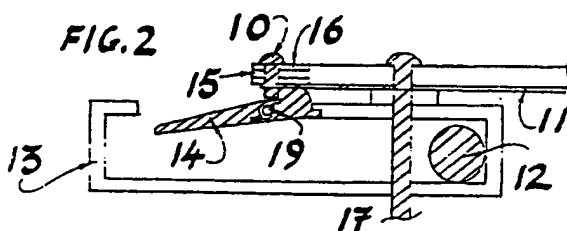
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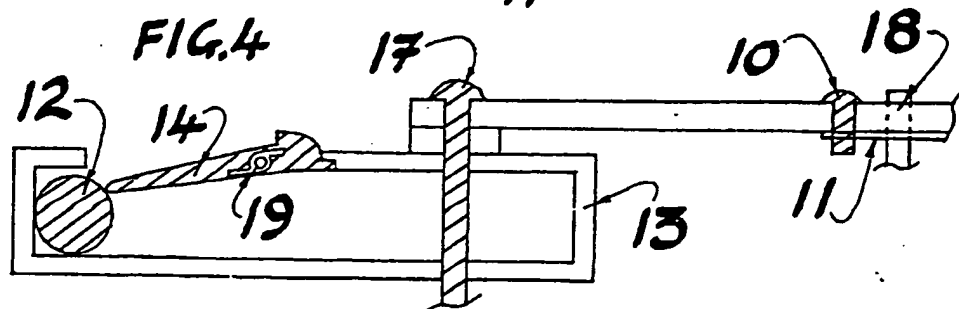
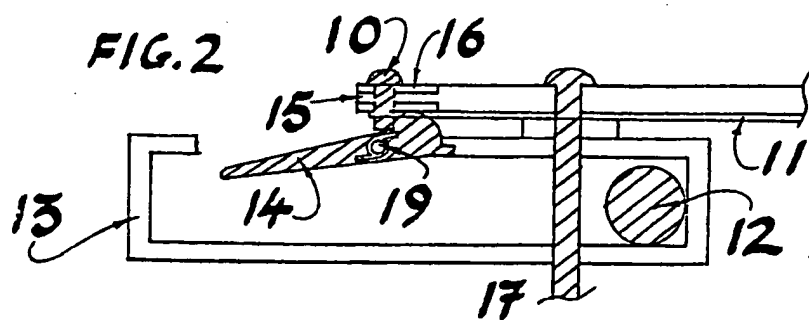
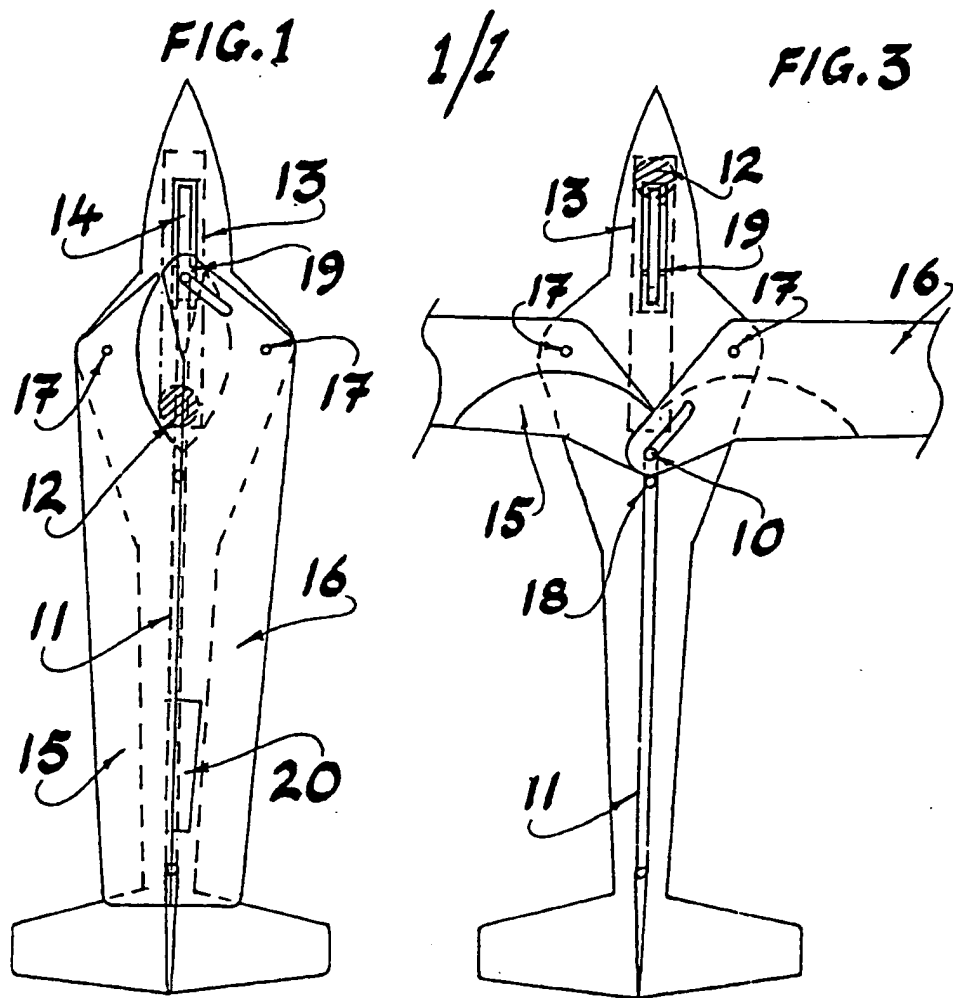
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## (54) Model aeroplane

(57) A catapult-launched swing wing model glider is catapulted into the air with its wings swept back (Figure 1, not shown). On reaching its apogee it tilts forward and a ball (12) rolls forward inside a tube (13) flicking a lever (14) which releases a catch (10). This allows wings (15 and 16) to spring out under tension from elastic or spring (11). The glider can be preset using a wing flap to circle during descent. When the glider lands it is reset by pointing the nose upwards and pulling one of the wings back to the swept-back position.





### Model Aeroplane

This invention relates to a model aeroplane and in particular to a model glider.

Fixed configuration model gliders are widely used models and are often launched into the air with an elastic catapult.

Conventional catapult-launched model gliders cannot be launched high into the sky because air resistance against the wings (which are necessarily long to retain lift when gliding) impedes their velocity so reducing the height of their apogee. This reduces their gliding time and therefore the pleasure gained from their use.

The present invention provides a toy aeroplane comprising a fuselage, wings that are movable between a retracted position, in which the wings are preferably located close to the fuselage, and a gliding position, in which the wings extend outwardly from the fuselage, means to move the wings from their retracted position to their gliding position, the said means being responsive to the attitude of the aeroplane to move the wings from their retracted position to their gliding position when the aeroplane assumes a predetermined angle of flight.

In their retracted position, the wings are preferably swept back so as to lie adjacent to the fuselage but other configurations are possible within the scope of the present invention.

Furthermore, instead of, or in addition to, the means for moving the wings from their retracted to their extended position, the aeroplane could include means for activating any other mechanism in response to the attitude of the aeroplane, e.g. to release flaps if the aeroplane banks heavily in one direction or another.

The invention will be explained in greater detail, by way of example only, with the aid of the accompanying drawings, in which:-

Figure 1 shows a cross-section in plan of the glider with its wings in a retracted position;

Figure 2 shows a cross-section of the mechanism for releasing the wings in the pre-release position;

Figure 3 shows a cross-section in plan of the glider with wings extended i.e. in their gliding position;

Figure 4 shows a cross-section of the mechanism for releasing the wings after it has been released.

Referring to the drawings, the glider is catapulted into the air with its wings 15, 16 retracted, i.e. restrained against the fuselage, by means of a lever 14 against tension provided by an elastic band or a spring 11. When the glider reaches its apogee, the nose of the aeroplane begins to point downwardly and this causes a ball bearing 12 in a tube 13 to roll towards the downwardly pointing nose. The ball bearing 12 then trips a lever 14 which releases the wings 15 and 16 from their restrained position and allows them to swing outwardly around pivots 17 under the force exerted on the wings by elastic band or spring 11 until they engage a stop 18 which prevents further movement of the wings. The stop is so positioned that it prevents further outward movement of the wings when the wings have reached their desired position for gliding. During descent the ball is restrained by catch 14 which returns to its original position under pressure from a spring 19.

To prepare the glider for launch the nose is pointed upwards and one of the wings is pulled back until catch 10 is once more held by lever 14.

A flap 20 can be provided on one of the wings, e.g. wing 16, which can be raised to cause the glider to circle during descent.

CLAIMS

1. A model aeroplane comprising a fuselage, wings that are movable between a retracted position, in which the wings are located close to the fuselage, and a gliding position, in which the wings extend outwardly from the fuselage, means to move the wings from their retracted position to their gliding position, the said means being responsive to the attitude of the aeroplane to move the wings from their retracted position to their gliding position when the aeroplane assumes a predetermined angle of flight.

2. A model aeroplane as claimed in claim 1 which includes any mechanical device which can be activated in response to the attitude of the aeroplane.

3. A model aeroplane as claimed in claim 1 or claim 2, wherein the means for moving the wings comprises a resilient member, e.g. a spring or a rubber band, which is biased to move the wings to their gliding position, and a detent preventing the resilient member moving the wings to their gliding position, which detent is releasable when the aeroplane assumes the said predetermined angle of flight.

4. A model aeroplane as claimed in claim 3, wherein the detent is releasable by a member, e.g. a ball bearing, moving down a race when the aeroplane reaches its apogee of flight.

5. A model aeroplane substantially as hereinbefore described with reference to, and as shown in, the accompanying drawings.

Amendments to the claims  
have been filed as follows

1. A model aeroplane comprising a fuselage, wings that are movable between a retracted position, in which the wings are located close to the fuselage, and a gliding position, in which the wings extend outwardly from the fuselage, a resilient member biased to move the wings from their retracted position to their gliding position, a detent preventing the resilient member moving the wings to the gliding position and means responsive to the attitude of the aeroplane to release the detent when the aeroplane reaches its apogee of flight, which release means comprises a member that moves down a race under the influence of gravity when the aeroplane has reached the apogee of flight and that contacts the detent after it has moved part of the way down the race to release the detent.

2. A model aeroplane as claimed in claim 1 which includes any mechanical device which can be activated in response to the attitude of the aeroplane.

3. A model aeroplane as claimed in claim 1 or claim 2, wherein the resilient means for moving the wings comprises a spring or a rubber band.

4. A model aeroplane as claimed in claim 3, wherein the member that is movable in the race is a ball bearing.

5. A model aeroplane substantially as hereinbefore described with reference to, and as shown in, the accompanying drawings.